

Operating manual

Version 1.0.2

Bench drill

- **OPTi**drill[®] 3008013
B I3basic
- **OPTi**drill[®] 3008014
B I4basic
- **OPTi**drill[®] 3008016
B I6basic

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1 Safety

Glossary of symbols

	provides further instructions
	calls on you to act
	listings

This part of the operating instructions

- explains the meaning and use of the warning notes included in these operating instructions,
- defines the intended use of the drilling machine,
- points out the dangers that might arise for you or others if these instructions are not observed,
- informs you about how to avoid dangers.

In addition to these operation instructions, please observe

- the applicable laws and regulations,
- the statutory provisions for accident prevention,
- the prohibition, warning and mandatory signs as well as the warning notes on the drilling machine.

Always keep this documentation close to the drilling machine.

INFORMATION

If you are unable to rectify an issue using these operating instructions, please contact us for advice:

Optimum Maschinen Germany GmbH
Dr. Robert-Pfleger-Str. 26
D-96103 Hallstadt
email: info@optimum-maschinen.de



1.1 Safety instructions (warning notes)

1.1.1 Classification of hazards

We classify the safety warnings into different categories. The table below gives an overview of the classification of symbols (ideogram) and the warning signs for each specific danger and its (possible) consequences.

Symbol	Alarm expression	Definition / consequence
	DANGER!	Impending danger that will cause serious injury or death to people.
	WARNING!	A danger that can cause serious injury or death.
	CAUTION!	A danger or unsafe procedure that can cause personal injury or damage to property.
	ATTENTION!	Situation that could cause damage to the drilling machine and product, as well as other types of damage. No risk of injury to persons.

B13-B14-B16_basic_GB.fm

Symbol	Alarm expression	Definition / consequence
	Information	Practical tips and other important or useful information and notes. No dangerous or harmful consequences for people or objects.

In case of specific dangers, we replace the pictogram with



general danger



with a warning of



injury to hands,



hazardous
electrical voltage,

or



rotating parts.

1.1.2 Other pictograms



Warning: danger of
slipping!



Warning: risk of stumbling!



Warning: hot surface!



Warning: biological hazard!



Warning: automatic start-
up!



Warning: tilting danger!



Warning: suspended loads!



Caution, danger of
explosive substances!



Switching on forbidden!



Use ear protection!



Read the operating
instructions before
commissioning!



Pull out the mains plug!



Wear protective glasses!



Wear protective gloves!



Wear safety shoes!



Wear a protective suit!

1.2 Intended use

WARNING!

If the drilling machine is not used as intended or if the safety directives or the operating instructions are ignored the liability of the manufacturer for any damages to persons or objects resulting hereof is excluded and the claim under guarantee is becoming null and avoid!



The bench drill is designed and manufactured to be used in a non-explosive environment. The bench drill is designed and manufactured for holes in cold metals or other non flammable materials or that not constitute a health hazard using a rotating filing-stripping tool that has a number of grooves for collecting the filings. The drilling machine is equipped with a drill chuck protection. The drill may only be operated with this chuck guard.

If the bench drill is used in any way other than described above, modified without authorization of Optimum Maschinen Germany GmbH, then the geared drill is being used improperly.

We will not be held liable for any damages resulting from any operation which is not in accordance with the intended use.

We explicitly point out that any construction, technical or process engineering changes that have not been approved by Optimum Maschinen Germany GmbH will render the warranty null and void

It is also part of intended use that the maximum values for the drilling machine are complied with and the operating manual is observed.

ATTENTION!

If the bench drill is not used as intended or if the safety directives or the operating instructions are ignored the liability of the manufacturer for any damages to persons or objects resulting hereof is excluded and the claim under guarantee is becoming null and avoid!



1.3 Reasonably foreseeable misuses

Any use other than that specified under "Intended use" or any use beyond that described will be deemed non-intended use and is not permissible. Any other use has to be discussed with the manufacturer.

It is only permissible to process metal, cold and non-inflammable materials with the bench drill.

In order to avoid misuse, it is necessary to read and understand the operating instructions before first commissioning.

Operators must be qualified.

1.3.1 Avoiding misuse

- Use of suitable cutting tools.
- Adapting the speed setting and feed to the material and workpiece.
- Clamp workpieces firmly and free of vibration.

ATTENTION!

The workpiece is always to be fixed by a machine vice, jaw chuck or by another appropriate clamping tool such as for the clamping claws.



WARNING!

Risk of injury caused by flying workpieces.

- ➔ Clamp the workpiece in the machine vice. Make sure that the workpiece is firmly clamped in the machine vice and that the machine vice is firmly clamped onto the machine table.
- Use cooling and lubricating agents to increase the durability of the tool and to improve the surface quality.



- Clamp the cutting tools and workpieces on clean clamping surfaces.
- Sufficiently lubricate the machine.
- Set the bearing clearance and guides correctly.

Recommendations:

- Insert the drill in a way that it is exactly positioned between the three clamping jaws of the quick action chuck.

When drilling, make sure that

- the suitable speed is set depending on the diameter of the drill,
- the pressure must only be such that the drill can cut without load,
- if there is too much pressure, the drill will wear quickly and may even break or jam in the borehole. If the drill gets jammed immediately stop the main motor by pressing the emergency switching off,
- For hard materials, e.g. steel, it is necessary to use commercial cooling/lubricating agents. Basically, always pull out the drill with rotating spindle from the workpiece.
- The processing of plastics on the drilling machine leads to static charging. The static charging of machine parts due to the processing of plastics cannot be safely dissipated by the drilling machine.

1.4 Possible dangers posed by the bench drill

The bench drill is state-of-the-art. Nevertheless, there is a residual risk, as the bench drill operates with

- high speeds,
- rotating parts,
- electrical voltage and currents.
- We have used design and safety engineering to minimize the health risk to personnel resulting from these hazards.

If the bench drill is used and maintained by personnel who are not duly qualified, there may be a risk resulting from incorrect or unsuitable maintenance of the bench drill.

INFORMATION

Everyone involved in the assembly, commissioning, operation and maintenance must

- be duly qualified,
- and strictly follow these operating instructions.

In the event of improper use

- there may be a risk to personnel,
- there may be a risk to the machine and other material values,
- the correct function of the bench drill may be affected.

Always disconnect the bench drill when cleaning or maintenance work is being carried out.

WARNING!

The bench drill may only be used with fully functional safety devices.

Disconnect the bench drill immediately, whenever you detect a failure in the safety devices or when they are not fitted!

This is your responsibility being the operator!



1.5 Qualification

1.5.1 Target group private users

The machine can be used in the private domain. The acumen of people in the private sector with training in metal working was taken into consideration for creating this operation manual. Vocational training or further instruction in a metal working profession is a prerequisite for safe

operation of the machine. It is essential that the private user is aware of the dangers involved in operating this machine. We recommend attending a training course in the use of drills. Your specialist dealer can offer you an appropriate training course. These courses are also offered at adult education centres in Germany.

1.5.2 Obligations of the User

The user must

- have read and understood the operating manual,
- be familiar with all safety devices and regulations,
- be able to operate the drilling machine.

1.5.3 Additional requirements regarding the qualification

The following additional requirements apply for work on electrical components or equipment:

- They must only be performed by a qualified electrician or person working under the instructions and supervision of a qualified electrician.

Before starting work on electrical parts or operating agents, the following actions must be taken in the order given:

- ➔ disconnect all poles,
- ➔ secure against restarting,
- ➔ check that there is no voltage.

1.6 User positions

The operator position is in front of the drilling machine.

INFORMATION

The power plug of the bench drill must be readily accessible.



1.7 Safety measures during operation

CAUTION!

Danger due to inhaling dust and mist that is hazardous to health. Dependent on the material which need to be processed and the used auxiliaries dusts and mist may be caused which might impair you health. Ensure that the harmful dust and mist generated are safely sucked off at the point of origin and routed away from the working area or filtered. To do so, use a suitable extraction unit.



CAUTION!

Risk of fire and explosion by using flammable materials or cooling lubricants.

Before processing inflammable materials (e.g. aluminium, magnesium) or using inflammable auxiliary materials (e.g. spirit) it is necessary to take additional preventive measures in order to safely avoid health risks.



1.8 Safety devices

The bench drill must only be operated with fully functional safety devices.

Stop the bench drill immediately if there is a failure on the safety device or becomes ineffective.

It is your responsibility!

If a safety device has been activated or has failed, the bench drill must only be used if you

- the cause of the fault has been eliminated,
- have verified that there is no danger to personnel or objects.

WARNING!

If you bypass, remove or override a safety device in any other way, you are endangering yourself and other persons working with the bench drill. The possible consequences are:



- injuries due to components or workpieces flying off at high speed,
- contact with rotating parts and
- fatal electrocution.

The bench drill includes the following safety devices:

- an emergency switching off
- a drilling table with T-slots to fix the workpiece or a vice,
- a fixed protective cover for the pulleys with position switch,
- a foldable drill chuck guard.

WARNING!

Although the isolating safety devices provided and delivered with the machine are designed to reduce the risks of workpieces being ejected or parts of tools or workpieces breaking off, they cannot eliminate these risks completely. Always work carefully and observe the limits of the machining process.



1.9 Personal protective equipment

For certain work, personal protective equipment is required.

Protect your face and your eyes: Wear a safety helmet with facial protection when performing work where your face and eyes are exposed to hazards.



Wear protective gloves when handling pieces with sharp edges.



Wear safety shoes when you assemble, disassemble or transport heavy components.



Use ear protection if the noise level (emission) in the workplace exceeds 80 dB (A).

Before starting work make sure that the required personal protective equipment is available at the work place.



CAUTION!

Soiled personal protection equipment that may be contaminated may cause illness. It must be cleaned after each use and at least once a week.



1.10 Safety check

Check the bench drill before each start-up or at least once per shift. Inform the person responsible immediately of any damage, defects or changes in the operating function.

Check all safety devices

- at the beginning of each shift (with the machine stopped),
- once a week (with the machine in operation) and
- after all maintenance and repair work.

Check that prohibition, warning and information signs and the labels on the bench drill.

- are legible (clean them, if necessary)
- are complete (replace if necessary).

INFORMATION

Organise the checks according to the following table;



General check		
Equipment	Check	OK
Guards	Mounted, firmly bolted and not damaged	
Signs, Markers	Installed and legible	
Date:	Checked by (signature):	

Functional check		
Equipment	Check	OK
Emergency switching off	After actuating the emergency switching off the bench drill must be switched off.	
Position switch of protective cover V-belt	The bench drill must not be switched on, if the protective cover of the V-belts is opened.	
Date:	Checked by (signature):	

1.11 Emergency switching off

CAUTION!

The drilling spindle keeps turning for a short time even after actuating the emergency switching off depending on the preset speed.



1.11.1 Drilling table

Seats for T-slots are attached to the clamping table.

WARNING!

Risk of injury due to workpieces flying off at high speed. Securely fix the workpiece on the drilling table.



1.12 Separating protective devices

1.12.1 Drill chuck guard

Adjust the guard to the correct height before you start working. To do this, loosen the clamping screw, set the required height and tighten the clamping screws again.

1.12.2 Protective cover of the V-belts

A protective cover for the belt pulleys is mounted on the drilling head. There is a switch integrated in the protective cover which monitors that the cover is closed.

INFORMATION

The machine cannot be started, if the protective cover is not closed.



1.12.3 Prohibition, warning and mandatory signs

INFORMATION

All warning signs must be legible. They must be checked regularly.



1.13 Personal protective equipment

For some works you need personnel protective equipment as protective equipment. These are

- Safety helmet,
- protective glasses or face guard,
- protective gloves,
- safety shoes with steel toe caps,
- ear protection.

Before starting work make sure that the required personnel protective equipment is available at the work place.

CAUTION!

Soiled personal protection equipment that may be contaminated may cause illness. It must be cleaned after each use and at least once a week.



Personal protective equipment for special works

Protect your face and your eyes: Wear safety glasses for all work where your eyes are at risk.

Wear protective gloves when handling pieces with sharp edges.

Wear safety shoes when you assemble, disassemble or transport heavy components.

1.14 Safety during operation

We specifically point out the dangers in the description of work with and on the bench drill.

WARNING!

Before activating the bench drill, double-check that make sure that there are no dangers generated for persons, not cause damage to equipment.



Avoid any unsafe work methods.

- Make sure that your work does not endanger anyone.
- The instructions described in these operating instructions must be strictly observed during assembly, operation, maintenance and repair.
- Do not work on the bench drill if your concentration is reduced, for example, because you are taking medication.
- Inform the supervisor about all hazards or faults.
- Stay on the bench drill until the machine completely stopped moving.
- Use the specified personal protective equipment. Ensure you wear close-fitting clothing and, if necessary, a hairnet.
- Do not use protective gloves when drilling.

1.15 Safety during maintenance

Inform the operators in good time of any maintenance and repair works.

Report all safety relevant changes and performance details of the bench drill or their operational behaviour. Any changes must be documented, the operating instructions updated and machine operators instructed accordingly.

1.15.1 Disconnecting and securing the bench drill

Disconnect the mains plug before starting maintenance and repairs.

All machine parts as well as all dangerous voltages are switched off. Excepted are only the positions which are marked with the adjoining pictogram.

Attach a warning sign to the machine.

1.16 Using lifting equipment

WARNING!

The use of unstable lifting and load suspension equipment that might break under load can cause severe injuries or even death.



Check that the lifting and load suspension gear

- they have sufficient load carrying,
- and that it is in perfect condition.

Observe the accident prevention regulations issued by your Employers Liability Insurance Association or other supervisory authorities applicable to your company.

Fasten the loads carefully. Never walk under suspended loads!

1.16.1 Mechanical maintenance

Remove or install protection safety devices before starting or after completing any maintenance work; this include:

- covers,
- safety instructions and warning signs,
- grounding cables.

If you remove protection or safety devices, refit them immediately after completing the work. Check that they are working properly!

1.17 Accident report

Inform your supervisors and Optimum Maschinen Germany GmbH immediately in the event of accidents, possible sources of danger and any actions which almost led to an accident (near misses).

There are many possible causes for "near misses".

The sooner they are notified, the quicker the causes can be eliminated.

1.18 Electronics

Have the machine and/or the electrical equipment checked regularly, at least every six months.

Immediately eliminate all defects such as loose connections, defective wires, etc.

A second person must be present during work on live components to disconnect the power in the event of an emergency.

Disconnect the bench drill immediately if there is a malfunction in the power supply!

2 Technical specification

Electrical connection	B 13 basic	B 14 basic	B 16 basic
Connection ~50Hz or ~60Hz	230 V; 300 W	230 V, 350W	230 V, 450 W
Drilling capacity			
Drilling capacity in steel [mm]	13	14	16
Throat [mm]	104	104	125
Spindle sleeve stroke [mm]	50	50	65
Spindle seat			
Spindle seat	fixed / B16	fixed / B16	MT2
Drilling table			
Table size [mm] Length x Width of the working surface	160 x 160	160 x 160	200 x 200
T-slot size [mm]	14	14	14
Maximum distance [mm] spindle - table	240	330	390
Working surface stand [mm] Length x Width of the working surface	135 x 175	140 x 180	160 x 170
Dimensions			
Height [mm]	580	700	820
Depth [mm]	420	420	510
Width [mm]	220	230	270
Total weight [kg]	19	21	36
Column diameter [mm]	46	46	60
Speeds	📖 Speed tables on page 21		
Environmental conditions			
Temperature	535 °C		
Relative humidity	25 - 80 %		
Operating material			
toothed rod	standard plain bearing grease		
Drilling column	Acid-free lubricating oil		

Emissions

CAUTION!

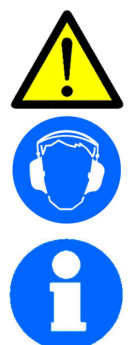
The user must wear noise protection and hearing protection.

The A-weighted sound pressure level L_{pA} is 76 to 79 dB.

The A-weighted sound power level L_{WA} is 88 to 91 dB.

INFORMATION

This numerical value was measured on a new machine under the operating conditions specified by the manufacturer. The noise behaviour of the machine might change depending on the age and wear of the machine.



Furthermore, the noise emission also depends on production engineering factors, e.g. speed, material and clamping conditions.

INFORMATION

The specified numerical value represents the emission level and does not necessarily a safe working level. Though there is a dependency between the degree of the noise emission and the degree of the noise disturbance it is not possible to use it reliably to determine if further precaution measures are required or not. The following factors influence the actual degree of the noise exposure of the operator:

- Characteristics of the working area, e.g. size or damping behaviour,
- other noise sources, e.g. the number of machines,
- other processes taking place in proximity and the period of time, during which the operator is exposed to the noise.

Furthermore, it is possible that the admissible exposure level might be different from country to country due to national regulations. This information about the noise emission should, however, allow the operator of the machine to more easily evaluate the hazards and risks.



3 Delivery, interdepartmental transport and unpacking

CAUTION!

Injuries caused by parts falling over or off a forklift, pallet truck or transport vehicle. Only use means of transport that can carry the total weight and are suitable for it.



3.1 Notes on transport, installation and unpacking

Improper transport of individual devices and minor machines, unsecured devices and minor machines stacked on top of each other or next to each other in packed or already unpacked condition is accident-prone and can cause damage or malfunctions for which we do not grant any liability or guarantee.

Transport the scope of delivery secured against shifting or tilting with a sufficiently dimensioned industrial truck to the installation site.

3.1.1 General risks during internal transport

CAUTION: DANGER OF TIPPING!

The device may be lifted unsecured by a maximum of 2cm.

Employees must be outside the danger zone, the reach of loads. Warn employees and, if necessary, advise employees of the hazard.

Act responsibly during transport and always consider the consequences. Refrain from daring and risky actions.

Gradients and descents (e.g. driveways, ramps and the like) are particularly dangerous. If such passages are unavoidable, special caution is required.

Before starting the transport check the transport route for possible danger points, unevenness and disturbances as well as for sufficient strength and load capacity.

Danger points, unevenness and disturbance points must be inspected before transport. The removal of danger spots, disturbances and unevenness at the time of transport by other employees leads to considerable dangers.

Careful planning of internal transport is therefore essential.



3.2 Scope of delivery

Check the bench drill immediately after delivery for transport damage, missing parts and loose locking bolts.

Compare the scope of delivery with the delivery note. Drilling machines in the standard package will be delivered as indicated below.

The standard delivery are:

B13 / B14	B16
• Drill head	• Drill head
• Drilling table	• Drilling table
• Stand	• Stand
• Column component with pre-assembled table carrier	• Column component with pre-assembled table carrier
• Drill chuck	• Drill chuck taper mandrel MT 2 • Drill drift
• 3 x handle bar for spindle sleeve lever	• 3 x handle bar for spindle sleeve lever
• Operating Manual	• Operating Manual

3.3 Storage

ATTENTION!

Incorrect and improper storage might result in damage or destruction of electrical and mechanical machine components.

Store packed and unpacked parts only under the intended environmental conditions. Follow the instructions and information on the transport box.

Consult Optimum Maschinen Germany GmbH if the machine and accessories are stored for more than three months or are stored under different environmental conditions than those specified here .



3.4 Installation and assembly

3.4.1 Installation site requirements

Organize the working area around the drilling machine according to the local safety regulations.

WARNING!

The drilling machine must be connected to the substructure.



INFORMATION

In order to attain good functionality and a high processing accuracy as well as a long service life of the machine, the place of installation should fulfil certain criteria.

Please observe the following points:

- The device must only be installed and operated in a dry and well-ventilated place.
- Avoid places close to machines which cause chips or dust.
- The installation site must be vibration-free, i.e. located away from presses, planing machines, etc.
- The substructure must be suitable for the bench drill. Pay attention also to the load-bearing capacity and evenness of the floor.
- Provide for sufficient backlight (Minimum value: 500 Lux, measured at the tool tip). In the event of a lower level of lighting, additional illumination must be provided, e.g. by means of a separate workplace light.



CAUTION!

Arrange the machine's connection cable in such a way that it will not cause a tripping hazard.



INFORMATION

The power plug of the bench drill must be readily accessible.



3.5 Assembly

WARNING!

Danger of crushing when assembling and installing the machine components.



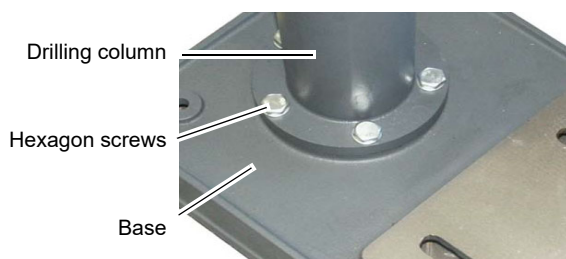
3.5.1 Mounting of base and drill column

INFORMATION

To mount the bench drill, you will need a 17 mm hexagonal wrench and the hexagonal screws supplied.



- ➔ Put the stand on the floor and fix the drill column to the stand. Hexagon bolts are provided to fix it.



Img.3-1: Stand

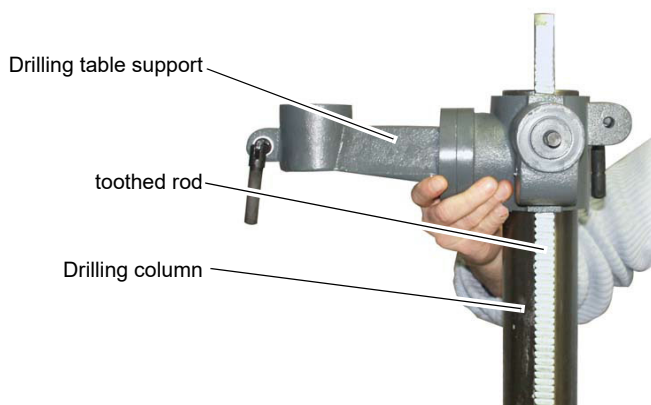
3.5.2 Assembly drilling column

Mounting the drilling table B16

INFORMATION

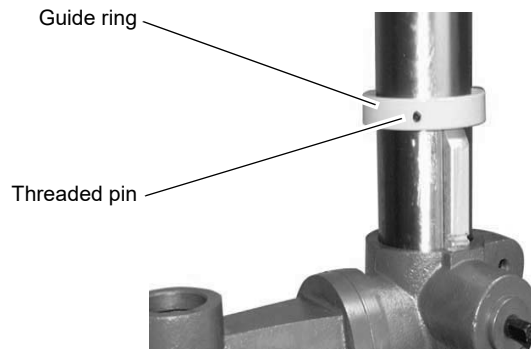
The longer side of the toothed rack without tothing must be upside.

- ➔ Push the toothed rack into the table support.
- ➔ Adjust the toothed rack within the table support in a way that the teeth of the toothed rack cam into the spiral wheel of the support for the drilling machine table.
- ➔ Push the drilling table support with the toothed rack on the drill column.



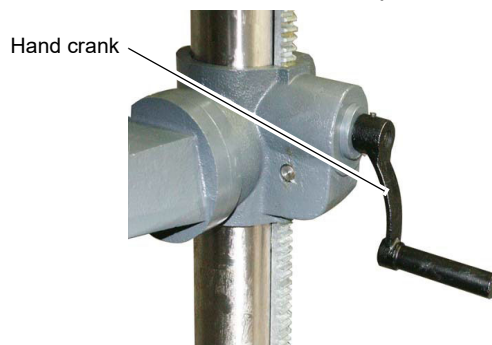
Img. 3-2: Mounting drilling column B16

- Insert the guide ring on to the column and on the toothed rack.
- Fix the guide ring and the threaded pin.
- Make sure that you can still easily turn the drilling table round the drill column.



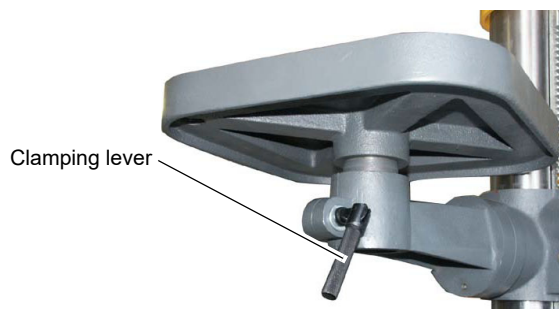
Img. 3-3: Assembly drilling column

- Mount the crank handle for the height-adjustment of the drilling table.
- Clamp the crank handle with the threaded pin.



Img. 3-4: Assembly crank handle

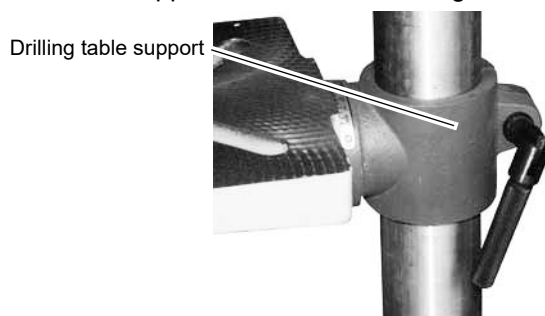
- Place the drilling table at the drilling table support. Mount the clamping lever.



Img. 3-5: Assembly clamping lever

Assemble of the drilling table on B13 and B14

- Push the table support with mounted drilling table on the drilling column.



Img.3-6: Assembly drilling table

3.6 Drill chuck guard

WARNING!

These drills must not be operated without the mounted fold-away drill chuck guard.



3.7 Installation

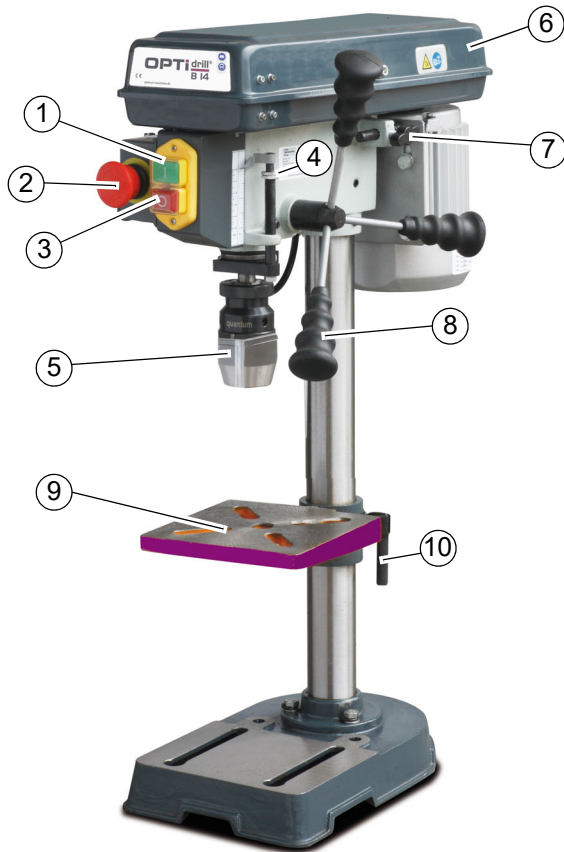
CAUTION!

The condition of the foundation and the fixing type of the machine foot to the foundation must be in a way that it can bear the loads of the bench drill. The foundation must be level. Check that the bench drill foundation is horizontal by using a spirit level.



4 Operation

4.1 Control and indicating elements



Pos.	Designation	Pos.	Designation
1	On	7	Clamping screw for belt tension
2	Emergency switching off	8	Lever for spindle sleeve feed
3	Off	9	Drilling table
4	Drill depth stop	10	Table height adjustment
5	Drill chuck (B14, B16) B13 - Gear rim drill chuck	11	Adjustment for the inclination of the table
6	Belt drive with housing	12	Clamping lever

CAUTION!

The emergency switching off may only be operated in an emergency. An operational shutdown of the machine with the emergency switching off is not intended.

Otherwise the service life of the emergency switching off will be considerably reduced.



4.2 Safety

WARNING!

These drills must not be operated without the mounted fold-away drill chuck guard.

Commission the machine only under the following conditions:

- The machine is in proper working order.
- The machine is used as prescribed.
- Follow the operating instructions.
- All safety devices are installed and activated.

Eliminate or have all malfunctions rectified promptly. Stop the machine immediately in the event of any anomaly in operation and make sure it cannot be started up accidentally or without authorization. Notify the person responsible immediately of any modification.



4.3 Operating elements

4.3.1 Drill chuck guard

WARNING!

These drills must not be operated without the mounted fold-away drill chuck guard.

Fold down the drill chuck guard before starting work.



CAUTION!

The drill chuck protection does not replace the wearing of any protective clothing that may be required.



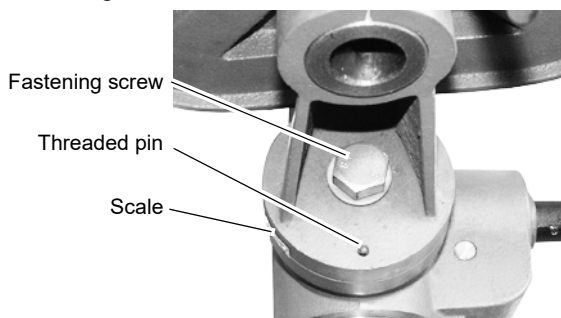
4.3.2 Drill depth stop

Use the drilling depth stop when drilling several holes of the same depth. The spindle may only be lowered to the required drill depth.

4.3.3 Table Inclination

The drilling table can be inclined to the right or to the left.

→ Loosen the fixing screw.



Img.4-1: Table Inclination

on B16:

→ Pull out the threaded pin.

INFORMATION

If you can not pull out the threaded pin, so the seat can be solved by turning at the nut clockwise.

→ Set the desired angle using the scale.

→ Re-tighten the fixing screw again.



INFORMATION

The threaded pin is only provided for correct positioning of a horizontal level of the drilling table.



4.4 Speed variation

WARNING!

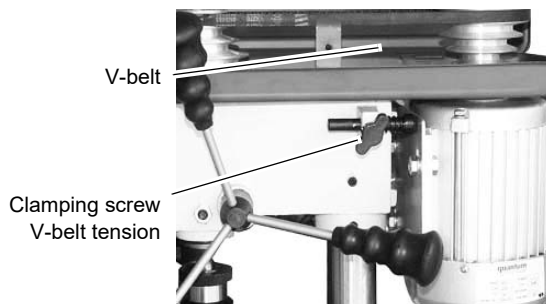
Only disassemble the cover hood if the bench drill is disconnected from the electrical supply.



Close and screw down the protective cover after each change of speed.

Disconnect the machine from the electrical supply.

- ➔ Remove the screw on the protective cover.
- ➔ Open the protective cover of the belt drive.
- ➔ Loosen the clamping screw of the V-belt tension and slide the motor in direction drill chuck.



Img. 4-2: Speed variation

ATTENTION!

Watch for the proper tension of V-belts.

Too heavy or too low tension of the belt can cause damage. The belts are correctly tensioned, when it can be by pressing with the fingers for about 1 cm.



4.4.1 Speed tables

Speed table B13 basic / B14 basic

	2620	
	1880	
	1370	
	900	
	520	
Spindle		Motor

Speed table B16 basic

	2500	
	1850	
	1400	
	960	
	660	
Spindle		Motor

B13-B14-B16_basic_GB.fm

4.5 Drill chuck

B13 basic, B14 basic

Mounting Morse taper and drill chuck

A friction-locking connector holds and centres the drill chuck in the B16 holding fixture.

- Check and clean the conical seat at the drill spindle and on drill chuck.
- Push the drill chuck with a firm jerk onto the B16 receptacle.

B16 basic

The drill chuck with MT taper is secured through a form-fit union (driver) against twisting in the drilling spindle.

A frictionally engaged connection keeps and centres the drill chuck or the drill in the drill spindle.

- Check or clean the conical seat in the drill spindle and on the taper mandrel of the tool or of the quick-action drill chuck.
- Shift the morse taper with a firm jerk into the spindle sleeve.



ATTENTION!

Make sure that the clamped tool is firmly and correctly fitted.



4.5.1 Unfitting the drill chuck

WARNING!

Only disassemble the drill chuck if the bench drill is disconnected from the electrical supply.

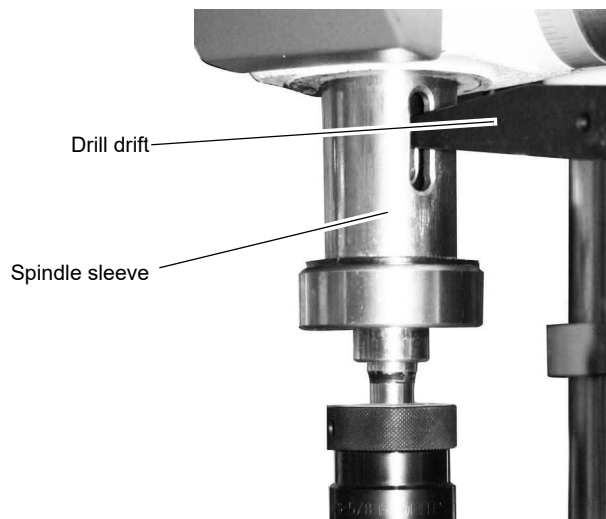
- Disconnect the bench drill from the electrical supply.
- The cone connection can be separated with a plastic or a rubber hammer.

The drill chuck and the taper mandrel are loosened from the drill spindle by means of a drill drift.

- Move the drill sleeve down.
- Turn the drilling spindle until the openings of the sleeve and of the drilling spindle are super-imposed.



→ Loosen the taper mandrel of the drill chuck with the help of a drill drift.



Img.4-3: Removal at B16 basic

4.6 Cooling

The friction generated during rotation can cause the edge of the tool to become very hot.

The tool should be cooled during the drilling process. Cooling the tool with a suitable cooling lubricant ensures better working results and a longer edge life of the tools.

This is best realised by a separate cooling equipment. If there is no cooling equipment included in the delivery volume, you can cool by means of a spray gun or a washing bottle.

CAUTION!

Danger of injury due to brushes getting caught or pulled in. Use a spray gun or a washing bottle for cooling.



INFORMATION

Use a water-soluble and non-pollutant emulsion as a cooling agent. This can be acquired from authorised distributors.

Make sure that the cooling agent is being collected.

Respect the environment when disposing of lubricants and coolants.

Follow the manufacturer's disposal instructions.



4.7 Before starting work

Before starting work, select the desired speed. It is depending on the used drilling diameter and on the material.

WARNING!

For drilling jobs, it is necessary to clamp the workpiece firmly to prevent the bit catching on the pieces. A machine vice or clamping claws is a suitable clamping device.

Put a wooden or plastic board beneath the workpiece to avoid drilling through to the work table, vice, etc. If required, adjust the desired drilling depth by means of the drilling depth stop in order to obtain a uniform drilling depth. Please make sure to use a suitable dust suction when treating wood since wood dust may be health hazardous. Wear a suitable dust mask when performing works at which dust is generated.



4.8 During work

The spindle sleeve feed is done via the star grip. Make sure that the feed is constant and not too fast. The spindle sleeve is returned to its initial position by the return spring.

WARNING!

Seizing of clothes and / or hair.

- Make sure to wear well-fitting work during drilling work.
- Do not use gloves.
- If necessary, use a hairnet.



CAUTION!

Risk of impact by the spindle sleeve lever.

Do not release the lever when resetting the drilling sleeve. Shock hazard due to energy stored in the return spring of the quill.



INFORMATION

The smaller the bit the more easily it may break.

In the case of deep drilling, remove the bit from time to time to remove filings from the drill. Add a few drops of oil to reduce friction and prolong the service life of the bit.

5 Maintenance

In this chapter you will find important information about

- Inspection,
- Maintenance and
- Repair.

ATTENTION!

- Properly performed regular maintenance is an essential prerequisite for
- operational safety,
- failure-free operation,
- long service life of the machine and
- the quality of the products which you manufacture.



5.1 Safety

WARNING!

The consequences of incorrect maintenance and repair work may include:

- extremely serious injuries to those working on the drilling machine and
- damage to the machine.

Only qualified personnel should carry out maintenance and repair work on the machine.



5.1.1 Preparation

WARNING!

Only work on the drilling machine if it has been disconnected from the power supply.



5.1.2 Restarting

Before restarting, run a safety check.

WARNING!

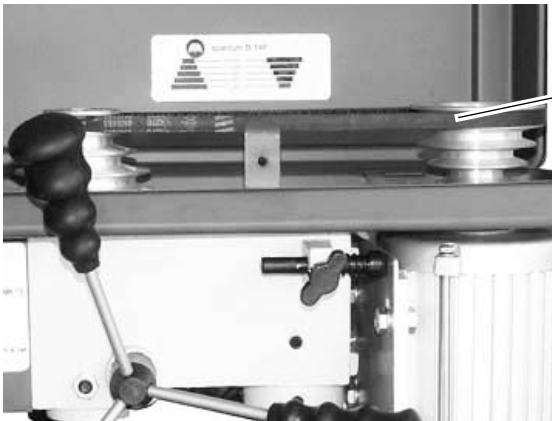
Before starting the machine you must be sure that

- no dangers generated for persons,
- the machine is not damaged.



5.2 Inspection and maintenance

The type and level of wear depends to a large extent on the individual usage and operating conditions. Any indicated intervals therefore are only valid for the corresponding approved conditions.

Interval	Where?	What?	How?
Start of work and after each maintenance or repair work	Bench drill	☞ Safety check on page 9	
weekly	Clamping bolts	V-belt tension	➔ Check if the attachment screws for the V-belt tension on the left and right side of the drilling head are well fastened. ➔ Check if the V-belts are well tightened. Checking the tension of V-belts, ☞ Speed variation on page 21.
Every month	Drilling column and toothed rod	Oiling	➔ Lubricate the drill column regularly with commercial oil. ➔ Lubricate the toothed rod regularly with commercial grease (e.g. friction bearing grease).
Every 6 months	V-belts at the drill head	Visual inspection	➔ Check whether the V-belts have become porous and worn.  Img. 5-1: V-belt housing

Interval	Where?	What?	How?
in case of need	Toothing of the spindle	Lubrication	Any unusual rattling noises can be eliminated by regreasing. The sleeve (1) moves downwards or upwards with the toothed spindle (2) in the fixed driven sleeve (3) during drill feed. The noises are caused by the necessary clearance between the two toothings of the sleeve and spindle. The grease in the delivery condition may have been used up. Img.5-2: Regreasing is carried out from above via the spindle drive. Apply grease at the visible toothed area of the spindle. It is recommended to use a grease which can remain permanently inside the toothings. The grease "Staburag NBU 30 PTM" from Klüber is recommended and has proved to be a successful assembly grease for clearance fits.
Every 6 months	Electronics	Testing	➔ Check the electrical equipment / parts of the bench drill.

5.3 Repair

5.3.1 Customer service technician

For any repair work request the assistance of an authorised customer service technician. Contact your specialist dealer if you do not have customer service's information or contact Stürmer Maschinen GmbH in Germany who can provide you with a specialist dealer's contact information. Optionally, the

Stürmer Maschinen GmbH
Dr. Robert-Pfleger-Str. 26
D- 96103 Hallstadt

can provide a customer service technician, however, the request for a customer service technician can only be made via your specialist dealer.

If the repairs are carried out by qualified technical personnel, they must follow the indications given in these operating instructions.

Optimum Maschinen Germany GmbH accepts no liability nor does it guarantee against damage and operating malfunctions resulting from failure to observe these operating instructions.

For repairs, only use

- faultless and suitable tools only,
- original parts or parts from series expressly authorised by Optimum Maschinen Germany GmbH.

6 Malfunctions

Malfunction	Cause/ possible effects	Solution
Noise during work.	• Spindle is too little lubricated • Tool is blunt or wrongly clamped • Pulley on the motor has come loose.	• Grease spindle • Use new tool and check tension (fixed setting of the bit, drill chuck and taper mandril) • Check the fastening of the pulley, tighten the fastening nut.
Bit „burnt“	• Drill speed too high /feed too high • Chips do not come out of the drill hole. • Drill blunt • No or too little cooling	• Select another speed • Extract drill more often during work • Sharpen or use new drill • Use coolant.
Drill tip is running off centre, the drilled hole is non-round	• Hard points on the workpiece • Length of the cutting spirals/or angles on the tool are unequal • Drill deformed	• Use new drill
Drill is defective	• No base / support used.	• Use support and clamp it with the workpiece
Drill is running non-round or shaking	• Bit deformed • Bearing worn down • Drill is not correctly clamped. • Drill chuck defective	• Use new drill • Have the spindle bearings replaced • Correctly clamp drill • Replace the drill chuck
The drill chuck or the taper mandrel cannot be inserted.	• Dirt, grease or oil on the taper inside of the drill chuck or on the taper surface of the drill spindle	• Clean surfaces well • Keep surfaces free of grease
Motor does not start.	• Motor is wrongly connected • Fuse is defective	• Have it checked by qualified

B13-B14-B16_basic_GB.fm

Malfunction	Cause/ possible effects	Solution
Motor is overheating and there is no power	• Motor overloaded? • Too low mains voltage • Motor is wrongly connected	• Reduce feed • Disconnect immediately and have it checked by authorized personnel • Have it checked by qualified
Precision of the work deficient	• Irregularly heavy or tensed workpiece • Inexact horizontal position of the work-piece holder	• Balance the piece statically and secure without straining • Adjust workpiece-holder
Drilling spindle sleeve does not return to its initial position	• Spindle return spring does not work • Locking bolt inserted	• Check spindle return spring, replace it, if necessary • Pull out locking pin
The drilling sleeve may not be moved downwards.	• Locking bolt inserted • Drill depth adjustment no released	• Pull out locking pin • Release drill depth adjustment
Spindle bearing overheating	• Bearing worn down • Bearing pretension is too high • Working at high drilling speed over a longer period of time.	• Replacing • Increase bearing clearance for fixed bearing (taper roller bearing) • Reduce drill speed and feed rate
Rattle the spindle if the workpiece surface is rough.	• Excessive slack in bearing. • Spindle moves up and down • Adjustment strip loose • Clamping chuck is loose • Tool is blunt. • Workpiece is loose	• Readjust the bearing slack or replace the bearing. • Readjust bearing clearance (fixed bearing)? • Adjust strip to the correct slack using the adjusting screw • Check, re-tighten • Sharpen or renew the tool. • Clamp the workpiece firmly.

7 Appendix

7.1 Copyright

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Subject to technical changes without notice.

7.2 Liability claims/warranty

Besides the legal liability claims for defects of the customer towards the seller, the manufacturer of the product, OPTIMUM GmbH, Robert-Pfleger-Straße 26, D-96103 Hallstadt, does not grant any further warranties unless they are listed below or were promised as part of a single contractual provision.

- Liability or warranty claims are processed at OPTIMUM GmbH's discretion either directly or through one of its dealers.
Any defective products or components of such products will either be repaired or replaced by components which are free from defects. Title to replaced products or components is transferred to OPTIMUM Maschinen Germany GmbH.
- The automatically generated original proof of purchase which shows the date of purchase, the type of machine and the serial number, if applicable, is the precondition in order to assert liability or warranty claims. If the original proof of purchase is not presented, we are not able to perform any services.
- Defects resulting from the following circumstances are excluded from liability and warranty claims:
 - Using the product beyond the technical options and proper use, in particular due to overstraining of the machine.
 - Any defects arising by one's own fault due to faulty operations or if the operating manual is disregarded.
 - Inattentive or incorrect handling and use of improper equipment
 - Unauthorized modifications and repairs
 - Insufficient installation and safeguarding of the machine
 - Disregarding the installation requirements and conditions of use
 - atmospheric discharges, overvoltage and lightning strokes as well as chemical influences
- Neither are the following items covered by liability or warranty claims:
 - Wearing parts and components which are subject to normal and intended wear, such as V-belts, ball bearings, lighting, filters, seals, etc.
 - Non reproducible software errors
- Any services, which OPTIMUM GmbH or one of its agents performs in order to fulfil any additional warranty are neither an acceptance of the defects nor an acceptance of its obligation to compensate. These services neither delay nor interrupt the warranty period.
- The court of jurisdiction for legal disputes between businessmen is Bamberg.
- If any of the aforementioned agreements is totally or partially inoperative and/or invalid, a provision which nearest approaches the intent of the guarantor and remains within the framework of the limits of liability and warranty which are specified by this contract is deemed agreed.

7.3 Advice for disposal / Options of reuse:

Please dispose of your equipment in an environmentally friendly manner, by not placing waste in the environment but in a professional manner.

Please do not simply throw away the packaging and later the disused machine, but dispose of both in accordance with the guidelines laid down by your city council/local authority or by an authorised disposal company.

7.3.1 Decommissioning

CAUTION!

Immediately decommission used machines in order to avoid later misuse and endangering of the environment or of persons.

- **Unplug the power cord.**
- **Cut the connection cable.**
- **Remove all operating materials from the used device which are harmful to the environment.**
- **If applicable remove batteries and accumulators.**
- **Disassemble the machine if required into easy-to-handle and reusable assemblies and component parts.**
- **Dispose of machine components and operating fluids using the intended disposal methods.**



7.3.2 Disposal of new device packaging

All used packaging materials and packaging aids from the machine are recyclable and generally need to be supplied to the material reuse.

The packaging wood can be supplied to the disposal or the reuse.

Any packaging components made of cardboard box can be chopped up and supplied to the waste paper collection.

The films are made of polyethylene (PE) and the cushion parts are made of polystyrene (PS). These materials can be reused after reconditioning if they are passed to a collection station or to the appropriate waste management enterprise.

Only forward the packaging materials correctly sorted to allow direct reuse.

7.3.3 Disposal of the old device

INFORMATION

Please take care in your interest and in the interest of the environment that all component parts of the machine are only disposed of in the intended and admitted way.

Please note that the electrical devices comprise a variety of reusable materials as well as environmentally hazardous components. Please ensure that these components are disposed of separately and professionally. In case of doubt, please contact your municipal waste management. If appropriate, call on the help of a specialist waste disposal company for the treatment of the material.



7.3.4 Disposal of electrical and electronic components

Please make sure that the electrical components are disposed of professionally and according to the statutory provisions.

The device is composed of electrical and electronic components and must not be disposed of as household waste. According to the European Directive regarding electrical and electronic used devices and the implementation of national legislation, used power tools and electrical



machines need to be collected separately and supplied to an environmentally friendly recycling centre.

As the machine operator, you should obtain information regarding the authorised collection or disposal system which applies for your company.

Please make sure that the electrical components are disposed of professionally and according to the legal regulations. Please only throw depleted batteries in the collection boxes in shops or at municipal waste management companies.

7.4 Disposal via municipal collection facilities

Disposal of used electrical and electronic components

(Applicable in the countries of the European Union and other European countries with a separate collecting system for those devices).

The sign on the product or on its packing indicates that the product must not be handled as common household waste, but that it needs to be disposed of at a central collection point for recycling. Your contribution to the correct disposal of this product will protect the environment and the public health. Incorrect disposal constitutes a risk to the environment and public health. Recycling of material will help reduce the consumption of raw materials. For further information about the recycling of this product, please consult your District Office, municipal waste collection station or the shop where you have purchased the product.



7.5 Change information operating manual

Chapter	Short summary	new version number
parts	Circuit diagram added	1.0.1
3	Interdepartmental transport	1.0.2

7.6 Product follow-up

We are required to perform a follow-up service for our products which extends beyond shipment.

We would be grateful if you could inform us of the following:

- ☐ Modified settings
- ☐ Any experiences with the geared drill which might be important for other users
- ☐ Recurring malfunctions.

8 Determining the cutting speed and the speed

8.1 Table cutting speeds / infeed

Material table						
Material to be processed	Recommended cutting speed Vc in m/min	Recommended infeed f in mm/revolution				
		Drill bit diameter d in mm				
		2...3	>3...6	>6...12	>12...25	>25...50
Unalloyed construction steels < 700 N/mm²	30 - 35	0.05	0.10	0.15	0.25	0.35
Alloyed construction steels > 700 N/mm²	20 - 25	0.04	0.08	0.10	0.15	0.20
Alloyed steels < 1000 N/mm²	20 - 25	0.04	0.08	0.10	0.15	0.20
Steels, low stability < 800 N/mm²	40	0.05	0.10	0.15	0.25	0.35
Steel, high stability > 800 N/mm²	20	0.04	0.08	0.10	0.15	0.20
non-rust steels > 800 N/mm²	12	0.03	0.06	0.08	0.12	0.18
Cast iron < 250 N/mm²	15 - 25	0.10	0.20	0.30	0.40	0.60
Cast iron > 250 N/mm²	10 - 20	0.05	0.15	0.25	0.35	0.55
CuZn alloy brittle	60 - 100	0.10	0.15	0.30	0.40	0.60
CuZn alloy ductile	35 - 60	0.05	0.10	0.25	0.35	0.55
Aluminum alloy up to 11% Si	30 - 50	0.10	0.20	0.30	0.40	0.60
Thermoplastics	20 - 40	0.05	0.10	0.20	0.30	0.40
Thermosetting materials with organic filling	15 - 35	0.05	0.10	0.20	0.30	0.40
Thermosetting materials with anorganic filling	15 - 25	0.05	0.10	0.20	0.30	0.40

8.2 Speed table

Vc in m/min	4	6	8	10	12	15	18	20	25	30	35	40	50	60	80	100
Drill bit Ø in mm	Speed n in rpm															
1,0	1274	1911	2548	3185	3822	4777	5732	6369	7962	9554	11146	12739	15924	19108	25478	31847
1,5	849	1274	1699	2123	2548	3185	3822	4246	5308	6369	7431	8493	10616	12739	16985	21231
2,0	637	955	1274	1592	1911	2389	2866	3185	3981	4777	5573	6369	7962	9554	12739	15924
2,5	510	764	1019	1274	1529	1911	2293	2548	3185	3822	4459	5096	6369	7643	10191	12739
3,0	425	637	849	1062	1274	1592	1911	2123	2654	3185	3715	4246	5308	6369	8493	10616
3,5	364	546	728	910	1092	1365	1638	1820	2275	2730	3185	3640	4550	5460	7279	9099
4,0	318	478	637	796	955	1194	1433	1592	1990	2389	2787	3185	3981	4777	6369	7962

Vc in m/ min	4	6	8	10	12	15	18	20	25	30	35	40	50	60	80	100
Drill bit Ø in mm	Speed n in rpm															
4,5	283	425	566	708	849	1062	1274	1415	1769	2123	2477	2831	3539	4246	5662	7077
5,0	255	382	510	637	764	955	1146	1274	1592	1911	2229	2548	3185	3822	5096	6369
5,5	232	347	463	579	695	869	1042	1158	1448	1737	2027	2316	2895	3474	4632	5790
6,0	212	318	425	531	637	796	955	1062	1327	1592	1858	2123	2654	3185	4246	5308
6,5	196	294	392	490	588	735	882	980	1225	1470	1715	1960	2450	2940	3920	4900
7,0	182	273	364	455	546	682	819	910	1137	1365	1592	1820	2275	2730	3640	4550
7,5	170	255	340	425	510	637	764	849	1062	1274	1486	1699	2123	2548	3397	4246
8,0	159	239	318	398	478	597	717	796	995	1194	1393	1592	1990	2389	3185	3981
8,5	150	225	300	375	450	562	674	749	937	1124	1311	1499	1873	2248	2997	3747
9,0	142	212	283	354	425	531	637	708	885	1062	1238	1415	1769	2123	2831	3539
9,5	134	201	268	335	402	503	603	670	838	1006	1173	1341	1676	2011	2682	3352
10,0	127	191	255	318	382	478	573	637	796	955	1115	1274	1592	1911	2548	3185
11,0	116	174	232	290	347	434	521	579	724	869	1013	1158	1448	1737	2316	2895
12,0	106	159	212	265	318	398	478	531	663	796	929	1062	1327	1592	2123	2654
13,0	98	147	196	245	294	367	441	490	612	735	857	980	1225	1470	1960	2450
14,0	91	136	182	227	273	341	409	455	569	682	796	910	1137	1365	1820	2275
15,0	85	127	170	212	255	318	382	425	531	637	743	849	1062	1274	1699	2123
16,0	80	119	159	199	239	299	358	398	498	597	697	796	995	1194	1592	1990

The correct manual feed Vc in meters per minute depends on the diameter of the drill, the material to be machined, the speed and the cutting material of the drill.

8.3 Ersatzteilzeichnungen - Parts drawings

A B13 basic / B14 basic

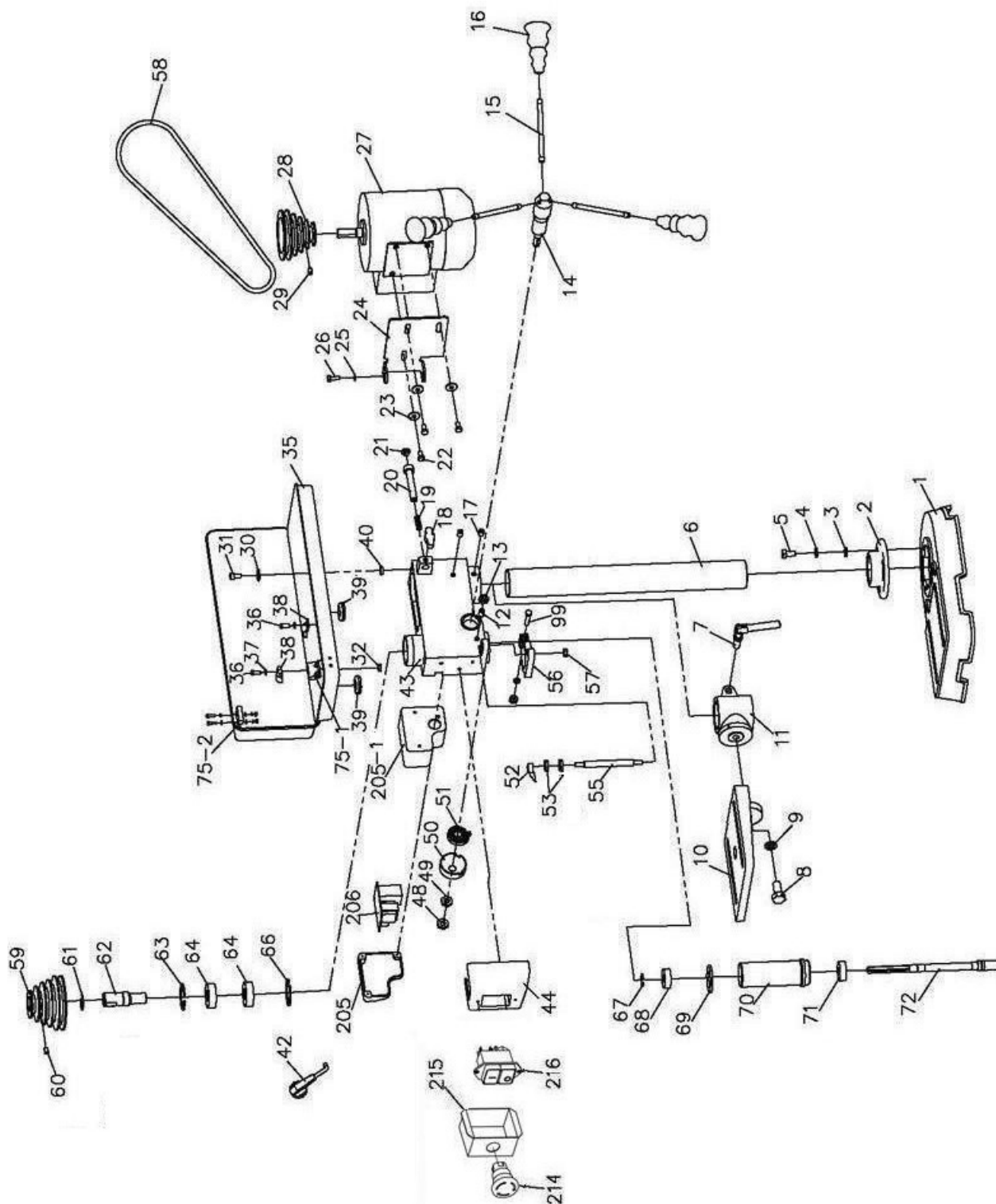


Abb.8-1: B13 / B14

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B13 / B14 BASIC

Pos.	Bezeichnung	Description	Menge Qty.	Grösse Size	Artikelnummer Item no.
1	Bodenplatte	Base plate	1		0300813101
2	Halterung	Column seat	1		0300813102
3	Scheibe	Washer	3	M 8	
4	Federscheibe	Spring washer	3	M 8	
5	Schraube	Screw	3	M8x16	
6	Bohrsäule	Column	1	B13	0300813106CPL
7	Klemmhebel	Clamping handle	1		0300813107
8	Schraube	Screw	1	M12x26	0300813108
9	Federscheibe	Spring Washer	1	M 12	
10	Bohrtisch	Drill table	1		0300813110
11	Bohrtischträger	Drill table support	1		0300813111
12	Gewindestift	Grub screw	1	M6x25	
13	Mutter	Nut	1	M6	
14	Schaftritzel	Pinion shaft	1		0300813114
15	Hebel	Lever	3		0300813115
16	Griff	Grip	3		0300813116
17	Gewindestift	Grub screw	2	M8x10	0340181
18	Klemmschraube	Clamping screw	1		0300813118
19	Feder	Spring	1		0300813119
20	Bolzen	Bolt	1	Pos. 20+21	0300813120
22	Schraube	Screw	3	M6x12	
23	Scheibe	Washer	3	M 6	
24	Motorplatte	Motor base plate	1	B13	0300813124
24	Motorplatte	Motor base plate	1	B14	0300814124
25	Scheibe	Washer	2	M8	
26	Schraube	Screw	2	M8x16	
27	Motor	Motor	1	B13	0300813127
27	Motor	Motor	1	B14	0300814127
28	Motorriemenscheibe	Motor pulley	1	B13	0300813128
28	Motorriemenscheibe	Motor pulley	1	B14	0300814128
29	Gewindestift	Grub screw	1	M6x10	03401160178
30	Scheibe	Washer	4	M 6	
31	Schraube	Screw	4	M8x12	
32	Mutter	Nut	1	M5	
33	Scheibe	Washer	1	M 5	
35	Riemengehäuse	Pulley cover	1		0300813135
36	Schraube	Screw	2	M5x12	
37	Scheibe	Washer	2	5	
38	Kabelklemme	Wire Clamp	2	M5	
39	Kabeldurchführung	Cable bushing	1		0300813139
40	Scheibe	Washer	2	8	0300813140
42	Anschlussstecker	Connector plug	1		0342025107
43	Bohrkopf	Drilling head	1		0300813143
46	Schraube	Screw	1		
48	Hutmutter	Cap nut	1	M10x1	
49	Mutter	Nut	1	M10x1	
50	Federgehäuse	Cover of Spring	1		0300813150
51	Rückholfeder	Return Spring	1		0300813151
52	Zeiger	Indicator	1		0300813152
53	Mutter	Nut	2		0300813153
55	Gewindestange	Rod	1		0300813155
56	Haltevorrichtung	Holder	1		0300813156
57	Mutter	Nut	1	M6	0300813157
58	Keilriemen	V-belt	1	B13/ 8 x 650Li	0391050
58	Keilriemen	V-belt	1	B14	039XPZ670
59	Spindelriemenscheibe	Spindle pulley	1	B13	0300813159
59	Spindelriemenscheibe	Spindle pulley	1	B14	0300814159
60	Gewindestift	Grub screw	1	M6 x 10	
61	Sicherungsring	Retaining ring	1	22	042SR22W
62	Mitnehmer	Actuator	1		0300813162
63	Sicherungsring	Retaining ring	1	40	042SR40W
64	Kugellager	Bearing	2	6203	0406203R
66	Sicherungsring	Retaining ring	1	40	042SR40W
67	Sicherungsring	Retaining ring	1	12	042SR12W
68	Kugellager	Bearing	1	6201	0406201R
69	O-Ring	O-Ring	1		0300813169
70	Pinole kpl.	Pinole CPL	1	Pos. 67-72	0300813170CPL
71	Kugellager	Bearing	1	6201	0406201R
72	Spindel	Spindle	1	B16 Aufnahme	0300813172
214	Not-Aus-Schalter	Emergency Stop switch	1		0460058
215	Klemmkasten	Clamping box	1		03003171114

B13-B14-B16_basic_parts.fm

B13 / B14 BASIC					
Pos.	Bezeichnung	Description	Menge Qty.	Grösse Size	Artikelnummer Item no.
216	Ein-Aus Schalter	ON / OFF switch	1		03008131216
Teile ohne Abbildung - Parts without illustration					
0	Abdeckung Lüfter (B13)	cover fan (B13)	1		0300813182
0	Abdeckung Lüfter (B14)	cover fan (B14)	1		0300814182
0	Kondensator (Motor)	condensator (engine)	1	B13	0321353
0	Kondensator (Motor)	condensator (engine)	1	B14	0300814176
0	Lüfterrad (Motor) B13/B14	fan wheel (engine) B13/B14	1		0300813178
0	Bohrfutterschutz, Klappschutz	Drill chuck protection, flap protection	1		03008013FS
0	Nutenstein	T-nut	1		3353025
Komplett-Sätze - Complete sets					
0	Pinole komplett	pinole complete	1		0300813170CPL
0	Säule kpl.	column compl.	1	B13	0300813106CPL
0	Säule kpl.	column compl.	1	B14 (pos. 6+2)	

B B16 basic

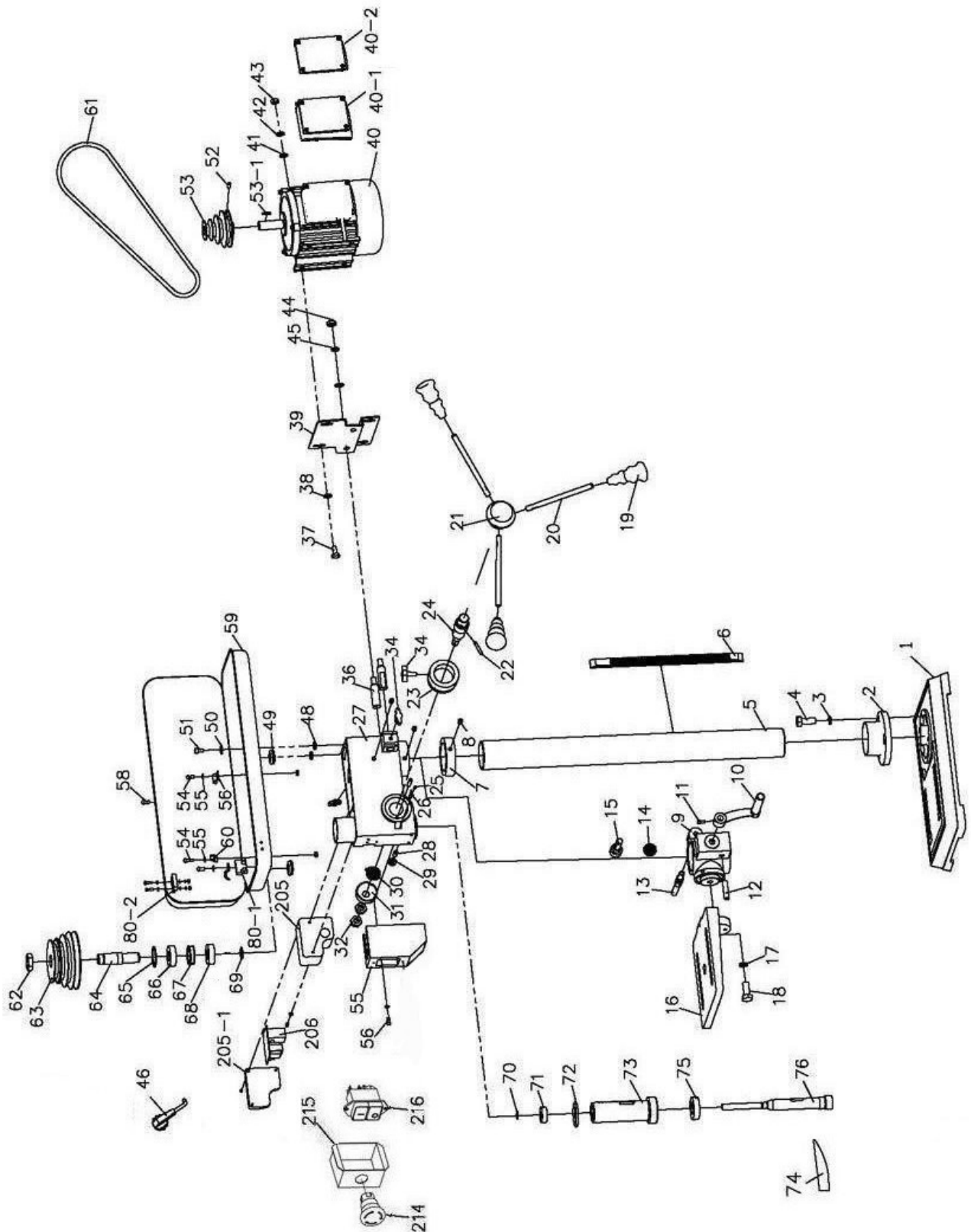


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B13-B14-B16_basic_parts.fm

B16 BASIC					
Pos.	Bezeichnung	Description	Menge Qty.	Grösse Size	Artikelnummer Item no.
1	Bodenplatte	Base plate	1		0300816101
2	Säulenring	Column ring	1		0300816102
3	Scheibe	Washer	3	M 8	
4	Schraube	Screw	3	M8x25	
5	Säule	Column	1		0300816105CPL
6	Zahnstange	Rack	1		0300816106
7	Säulenring	Column Ring	1		0300816107
8	Stiftschraube	Grub screw	1	M8x10	
9	Bohrtschhalter	Support	1		0300816109
10	Kurbel	Crank	1		0300820110
12	Bolzen	Bolt	1		0300816112
13	Klemmschraube	Clamp screw	1		0300813107
14	Zahnrad	Gear	1		0300816114
15	Antriebsschnecke	Drive worm	1		0300816115
16	Bohrtsch	Work Table	1		0300816116
17	Scheibe	Washer	1	M 12	
18	Schraube	Screw	1	M12x25	0300813108
19	Knopf	Knob	1		0300813116
20	Hebel	Lever	1		0300816120
21	Nabe	Collet	1		0300816121
22	Hohlspannstift	Pin	1	5x45	0300832369
23	Skalenring	Dial	1		0300816123
24	Schaftritzel	Pinion shaft	1		0300816124
25	Niete	Rivet	1		0340116
26	Zeiger	Pointer	1		0322025
27	Bohrkopf	Drill head	1		0300816127
28	Stiftschraube	Grub screw	1	M8x16	
29	Mutter	Nut	1	M 8	
30	Rückholfeder	Return spring	1		0300816130
31	Federgehäuse Rückholfeder	Cover of return spring	1		0300816131
32	Mutter	Nut	2	M 12x1,5	0300816132
34	Klemmschraube	Clamping screw	1		0300813118
36	Bolzen	Bolt	1		0300816136
37	Schraube	Screw	4	M8x16	
38	Scheibe	Washer	4	M 8	
39	Motor Befestigungsplatte	Motor mounting plate	1		0300816139
40	Motor	Motor	1		0300816140
41	Scheibe	Washer	1	8	
42	Federscheibe	Spring Washer	1	8	
43	Mutter	Nut	1	M8	
44	Mutter	Nut	1	M8	
45	Scheibe	Washer	1	8	
46	Anschlussstecker	Connector plug	1		
48	Mutter	Nut	1	M6	
49	Gummiring	Rubber Ring	1		
50	Scheibe	Washer	4	6	
51	Innensechskantschraube	Socket head screw	1	M6x8	
52	Gewindestift	Grub screw	1	M5x22	
53	Motorriemenscheibe	Motor Pulley	1		0300816153
53-1	Passfeder	Fitting key	1		042P5540
56	Schraube	screw	1		0300323163
57	Schalter	switch	1		0320299
58	Schraube	Screw	1	M5x8	
59	Riemengehäuse	Pulley Cover	1		0300816159
61	Keilriemen	V-belt	1	XPZ862	0391100
62	Mutter	Nut	1		0300816162
63	Spindelriemenscheibe	Spindle pulley	1		0300816163
64	Schaft	pinion	1		0300816164
65	Sicherungsring	Retaining ring	1		042SR47I
66	Kugellager	Bearing	1	6204	0406204R
67	Distanzring	Spacer	1		0300816167
68	Kugellager	Bearing	1	6204	0406204R
69	Sicherungsring	Retaining ring	1		042SR19W
70	Sicherungsring	Retaining ring	1		
71	Kugellager	Bearing	1	6201	0406201R
72	O-Ring	O-Ring	1		0300816172
73	Pinole	Pinole	1		0300816173
74	Austreiber	Drill Drift	1		0300816174
75	Kugellager	Bearing	1	6205	0406205R
76	Spindel	Spindle	1		0300816176
214	Not-Aus-Schalter	Emergency Stop switch	1		0460058

B16 BASIC					
Pos.	Bezeichnung	Description	Menge Qty.	Grösse Size	Artikelnummer Item no.
215	Klemmkasten	Clamping box	1		03003171114
216	Ein-Aus Schalter	On-Off switch	1		03008131216
Teile ohne Abbildung - Parts without illustration					
0	Bohrfutterschutz, Klappschutz	Drill chuck protection, flap protection	1		03008016FS
0	Nutenstein	Slot nut	1		
0	Motorlüfterdeckel	Motor fan cover	1		0300816180
0	Null-Anzeige	Zero-Pointer	1		0322025
Komplett-Sätze - Complete sets					
0	Pinole Komplett	Spindle sleeve complete	1		0300816173CPL
0	Säule mit Halter	Column with base ring	1		0300816105CPL

EC - Declaration of Conformity

according to Machinery Regulation 2023/1230 Annex V Part A

The manufacturer / distributor Optimum Maschinen Germany GmbH
Dr.-Robert-Pfleger-Str. 26
D - 96103 Hallstadt, Germany

hereby declares that the following product

Product designation: Bench drilling machine

Type designation: B13 basic | B14 basic | B16 basic

fulfils all the relevant provisions of the Machinery Regulation specified above and the additionally applied directives (in the following) - including the changes which applied at the time of the declaration.

Description:

Bench drilling machine.

The following additional EU directives have been applied:

EMC Directive 2014/30/EU ; Restriction of the use of certain hazardous substances in electrical and electronic equipment 2015/863/EU

The following harmonized standards were applied:

EN 12717:2009-07 Safety of machine tools - Drilling machines

EN 62841-3-13:2017 Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 3-13: Particular requirements for transportable drills + Technical annex

EN 62841-1:2023-03 Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 1

EN IEC 55014-1:2022-12 Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission

EN IEC 55014-2:2022-10 Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity

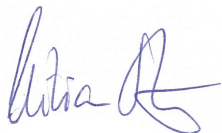
EN IEC 61000-3-2:2023-10 Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)

EN 61000-3-3:2023-02 Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection

EN ISO 12100:2011-03 Safety of machinery - General principles for design - Risk assessment and risk reduction

Name and address of the person authorized to compile the technical file:

Kilian Stürmer, phone: +49 (0) 951 96555 - 800



Kilian Stürmer (CEO, General Manager)
Hallstadt, 2024-11-27

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